I-70 EAST
ENVIRONMENTAL IMPACT STATEMENT

I-70 EAST

SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT STATEMENT AND SECTION 4(F) EVALUATION

BIOLOGICAL ASSESSMENT

ATTACHMENT L

AUGUST 2014

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List of acronyms

BGEPA	Bald and Golden Eagle Protection Act
CDOT	Colorado Department of Transportation
CPW	Colorado Parks and Wildlife
Denver	City and County of Denver
EIS	Environmental Impact Statement
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
IPaC	Information, Planning, and Conservation System
MBTA	Migratory Bird Treaty Act
MLRA	Major Land Resource Area
NRCS	Natural Resources Conservation Service
PACT	Preferred Alternative Collaborative Team
PBA	Programmatic Biological Assessment
PMJM	Preble's meadow jumping mouse
RMA	Rocky Mountain Arsenal National Wildlife Refuge
RTD	Regional Transportation District
SPWRAP	South Platte Water-Related Activities Program
USC	United States Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service

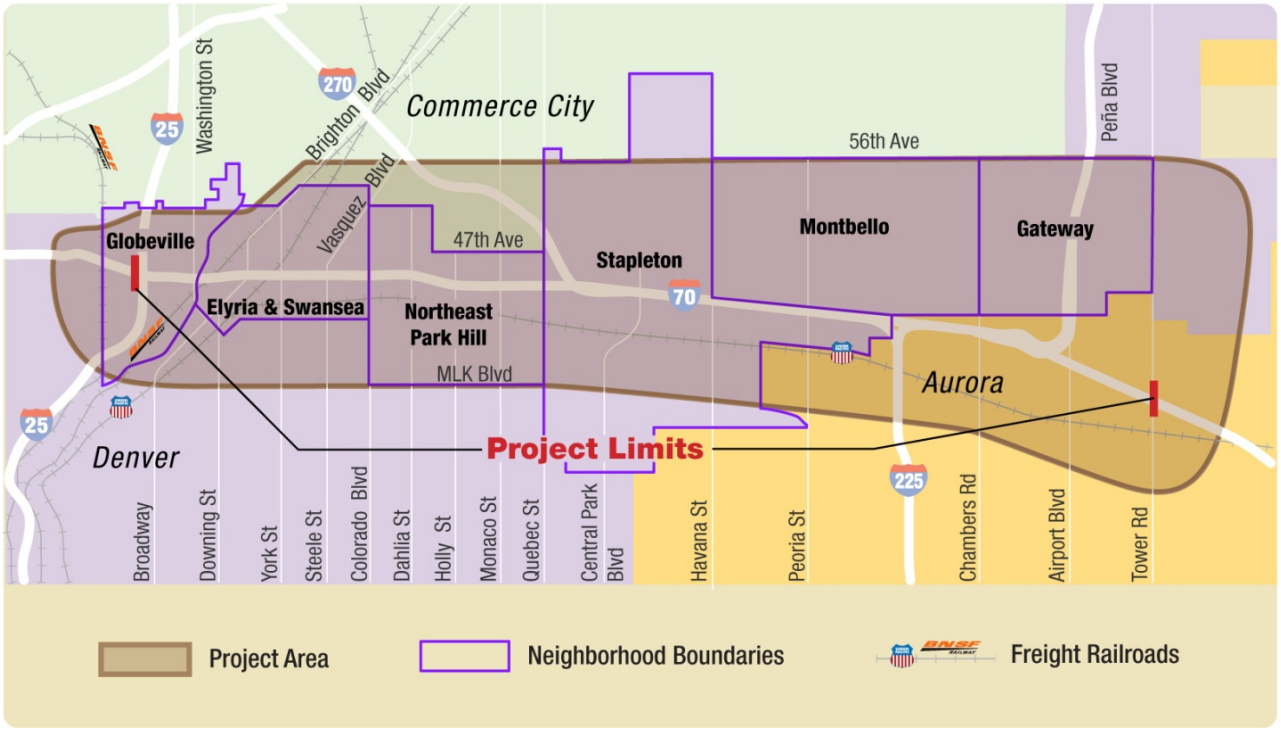
1. Introduction

The I-70 East Environmental Impact Statement (EIS) is a joint effort between the Federal Highway Administration (FHWA) and the Colorado Department of Transportation (CDOT). The intent of the EIS is to identify potential highway improvements along I-70 in the Denver metropolitan area between I-25 and Tower Road and to assess their potential effects on the human and natural environment.

1.1. Project limits

As shown on Figure 1, the project limits extend along I-70 between I-25 and Tower Road. The project area covers portions of Denver, Commerce City, Aurora, and Adams County. This area includes the neighborhoods of Globeville, Elyria and Swansea, Northeast Park Hill, Stapleton, Montbello, and Gateway. The portion of Aurora in the project area is referred to as the Aurora Neighborhood in this report. Each resource has a specific study area based on the resource.

Figure 1. Project area



1.2. Project background

Analysis of I-70 began in June 2003 as part of the I-70 East Corridor EIS, a joint effort conducted by CDOT, FHWA, the Regional Transportation District (RTD), the Federal Transit Administration (FTA), and the City and County of Denver (Denver). In June 2006, CDOT and RTD determined that the highway and transit elements of the I-70 East Corridor EIS process serve different travel markets, are located in different corridors, and have different funding sources. Therefore, the highway and transit components of the analysis were separated. After the project separation, the Draft EIS, published in November 2008, fully evaluated the alternatives that addressed the purpose and need of the project and, therefore, made it through the screening process. With the release of the 2008 Draft EIS, the public and agencies had an opportunity to review and comment on it. Public hearings were held to present the information and encourage formal comments. Due to the complexity of the project and the extensive amount of public comments received

during the formal comment period, the project team decided to form the Preferred Alternative Collaborative Team (PACT) as part of a collaborative process with project stakeholders to recommend a preferred alternative. Through this collaborative process, additional analysis was performed, which resulted in the elimination of two previous alternatives and the addition of a new alternative option.

Because more than four years have passed since the Draft EIS was first published in 2008, many federal and state regulations and requirements have changed. Additional analysis and public involvement efforts were performed to determine the validity of the alternatives that were considered reasonable alternatives in the 2008 Draft EIS. Based on the public comments, the additional analysis, and the PACT collaborative process, the project team determined that the realignment alternatives are no longer reasonable. Consequently, a new alternative was designed to address the public concerns and incorporate their comments. Due to the changes in the alternatives, outdated census data, and new federal and state laws and regulations, the analysis in the 2008 Draft EIS was revisited and a Supplemental Draft EIS was written.

1.3. Report overview

This biological assessment has been prepared in compliance with Section 7 of the Endangered Species Act of 1973, as amended (16 United States Code [USC] §1531–1543). The purpose of this biological assessment is to review the proposed I-70 East alternatives in sufficient detail to determine the likely effects of the project on species listed as threatened, endangered, proposed, or candidate species under the Endangered Species Act that potentially occur in the project area, as well as Bald Eagles that are protected under the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA). Table 1 lists the species considered in this document.

Table 1. Federal special-status species considered

Species	Federal Status
Small Mammals	
Black-footed ferret (*Mustela nigripes*)	Endangered
Preble's meadow jumping mouse (PMJM) (*Zapus hudsonius preblei)*	Threatened
Plants	
Colorado butterfly plant (*Gaura neomexicana* ssp. *coloradensis*)	Threatened
Ute ladies'-tresses orchid *(Spiranthes diluvialis)*	Threatened
Platte River Species	
Least Tern, interior population *(Sterna antillarum)*	Endangered
Piping Plover *(Charadrius melodus)*	Threatened
Whooping Crane *(Grus americana)*	Endangered
Pallid sturgeon *(Scaphirhynchus albus)*	Endangered
Western prairie fringed orchid (*Platanthera praeclara*)	Threatened
Bald and Golden Eagle Protection Act	
Bald Eagle (*Haliaeetus leucocephalus*)	De-listed, protected under BGEPA and MBTA

The Mexican Spotted Owl (*Strix occidentalis*) is listed as potentially occurring in the project area by the U.S. Fish and Wildlife Service's (USFWS) Information, Planning, and Conservation System (IPaC) (USFWS, 2012a), but has not been documented in Denver or Adams Counties (NatureServe, 2012), and no suitable mature forest or canyon habitat occurs for this species in the project area. For these reasons, it was not evaluated further.

The Platte River species listed in Table 1 do not occur in the project area but are included because of the potential indirect adverse effects that may occur from water utilization during construction. This water utilization could cause a depletion of water flows in the South Platte River, which could also affect downstream flows in the Platte River. To address the potential effects of these depletions on federally listed species inhabiting downstream habitats dependent on the river for their survival, CDOT, as a state agency, is participating in the South Platte Water Related Activities Program (SPWRAP). SPWRAP generates the funds necessary to provide human resources and assist the state in achieving the required re-regulation of South Platte River flows, fulfilling Colorado's accounting and reporting requirements, and addressing any shortfalls in state funding for this effort (SPWRAP, n.d.).

CDOT is also cooperating with FHWA, which provides a federal nexus for the project. In response to the need for formal consultation for the water used from the South Platte River Basin, FHWA and CDOT have jointly prepared a Programmatic Biological Assessment (PBA) that estimates total water usage from 2012 until 2019. The PBA addresses the following species: Least Tern (interior population) (*Sternula antillarum),* pallid sturgeon (*Scaphirhynchus albus)*, Piping Plover (*Charadrius melodus)*, western prairie fringed orchid (*Platanthera praeclara)*, and the Whooping Crane (*Grus americana),* as well as designated critical habitat for the Whooping Crane. In accordance with the PBA and the Biological Opinion issued by the USFWS (2012b), water used for this and other CDOT/FHWA projects in the South Platte River Basin specifically covered by the PBA will be reported to the USFWS on an annual basis. Effects to species not addressed in the PBA or affected by causes other than water depletions to the South Platte River are analyzed separately.

The Bald Eagle had been listed by the Endangered Species Act as a federally threatened species since February 1978. In 2007, it was determined that threats to the Bald Eagle have been removed or reduced enough that the eagle was recovered and no longer met the definition of a threatened species under the Endangered Species Act, and so it was removed from the list on August 8, 2007. Despite its delisting by USFWS, it is still listed as a state threatened species by Colorado Parks and Wildlife (CPW). Additionally, it is protected by BGEPA (16 USC §668–668d) and the MBTA (16 USC §703–712), both of which prohibit "taking" (killing, selling, or otherwise harming) of eagles, their nests, or eggs.

1.3.1. Block clearance zones

Block clearance zones for four species are located in the project area. Block clearance zones are areas that the USFWS has determined, through analysis of species survey data and occurrence information, that there is a very low probability of the species occurring in an area and that it is likely extirpated from that area. Within the project area, block clearance zones exist for the black-footed ferret (*Mustela nigripes*), Colorado butterfly plant, PMJM, and Ute ladies'-tresses orchid (see Appendix A). The block clearance for the black-footed ferret covers the entire eastern portion of Colorado. The block clearance for the Colorado butterfly plant and the Ute ladies'-tresses orchid covers the area immediately adjacent to the South Platte River. The block clearance for the PMJM covers the Denver metropolitan area, with an exception of the Rocky Mountain Arsenal National Wildlife Refuge (RMA) (USFWS, 2012c).

Because the block clearances for the black-footed ferret and PMJM cover the entire project area, these species are not considered further in this document.

2. Description of alternatives

The I-70 East Supplemental Draft EIS examines potential effects to social, environmental, and economic resources resulting from proposed improvements to I-70 between I-25 and Tower Road. Consistent with federal regulations, the Supplemental Draft EIS fully evaluates potential effects that might result from the No-Action Alternative and the Build Alternatives (Revised Viaduct Alternative and Partial Cover Lowered Alternative). The alternatives and options are presented in Table 2.

For more detail on the alternatives and their options, see the *I-70 East Supplemental Draft EIS Alternative Analysis Technical Report* (2014).

Table 2. Alternatives and Options

Alternative		Expansion Options	Connectivity Options	Operational Options
No-Action		• North • South	N/A	N/A
Build Alternatives	Revised Viaduct	• North • South	N/A	• General-Purpose Lanes • Managed Lanes
	Partial Cover Lowered	N/A	• Basic • Modified	• General-Purpose Lanes • Managed Lanes

No-Action Alternative

The No-Action Alternative replaces the existing viaduct between Brighton Boulevard and Colorado Boulevard without adding any capacity; the remainder of the corridor will reflect current conditions and include existing, planned, and programmed roadway and transit improvements (such as FasTracks) in the study area. The No-Action Alternative is shown in Figure 2.

Figure 2. No-Action Alternative

Build Alternatives

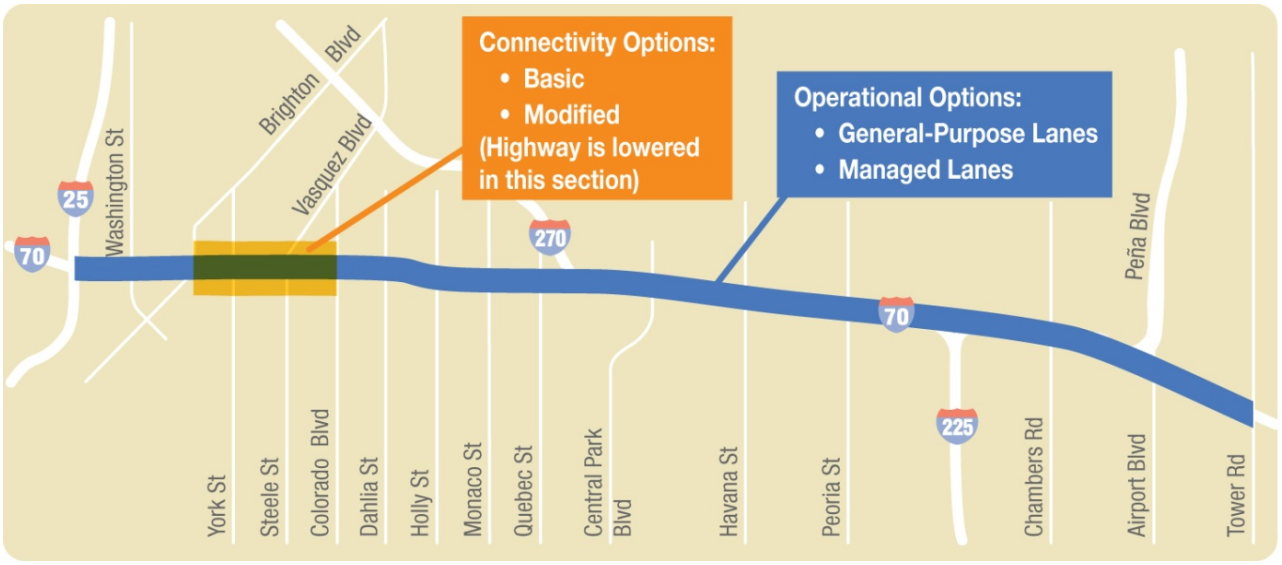
Build Alternatives add capacity to I-70 by constructing additional lane(s) or restriping between I-25 and Tower Road.

Revised Viaduct Alternative. The Revised Viaduct Alternative is shown in Figure 3. This alternative replaces the existing I-70 viaduct between Brighton Boulevard and Colorado Boulevard. It adds two additional lanes in each direction from Brighton Boulevard to Tower Road. It also adds capacity from I-25 to Brighton Boulevard.

Figure 3. Revised Viaduct Alternative

Partial Cover Lowered Alternative. The Partial Cover Lowered Alternative is shown in Figure 4. This alternative removes the existing I-70 viaduct between Brighton Boulevard and Colorado Boulevard, lowering the highway below grade in this area, while adding two additional lanes in each direction from Brighton Boulevard to Tower Road. This alternative includes a cover over the highway between Clayton Street and Columbine Street. The alternative also adds capacity from I-25 to Brighton Boulevard.

Figure 4. Partial Cover Lowered Alternative



Alternative Options

Expansion Options. Expansion Options, shown in Figure 3 and Figure 4, refer to moving the north edge of the highway north or the south edge of the highway south of the existing facility from Brighton Boulevard to Colorado Boulevard to accommodate the larger footprint resulting from standard width lanes, expanded shoulders, and construction phasing. These options apply to the No-Action Alternative and the Revised Viaduct Alternative. The Partial Cover Lowered Alternative does not include the Expansion Options because

expansion of the highway can occur only on the north side due to engineering restrictions and the location of the UPRR rail yard to the south.

Connectivity Options. Connectivity Options are shown in Figure 4 and apply only to the Partial Cover Lowered Alternative. They include different frontage road and highway cover combinations. The Basic Option includes a highway cover between Clayton Street and Columbine Street, with 46th Avenue operating as a one-way road on each side of the highway (westbound on the north side and eastbound on the south side). The Modified Option removes the Steele Street/Vasquez Boulevard interchange to include an additional cover in the vicinity of Steele Street. 46th Avenue is designed as a two-way street on both the north and south sides of the highway; however, it is discontinued between Clayton Street and Columbine Street on the north side to allow for a seamless connection between Swansea Elementary School and the cover. Vehicular north/south connectivity across the highway at Josephine Street will be eliminated and replaced with a bike/pedestrian bridge. Additional connectivity and intersection improvements are discussed in Chapter 3, Summary of Project Alternatives.

Operational Options. Operational Options include two scenarios on how the additional capacity will be managed and operated. The General-Purpose Lanes Option will allow all vehicles to use all the lanes on the highway, while the Managed Lanes Option implements operational strategies (such as pricing) for the additional lanes that would be adjusted based on real-time traffic demand for vehicles that use these lanes. The additional lanes are separated with a four-foot buffer from the rest of the lanes under the Managed Lanes Option, and they have direct connections to I-225, I-270, and Peña Boulevard. Operational Options apply to the Revised Viaduct Alternative and the Partial Cover Lowered Alternative, and they are shown in Figure 3 and Figure 4.

3. Affected environment

The I-70 East project area occurs in the High Plains Level III Ecoregion, within the Flat to Rolling Plains Level IV Ecoregion (Chapman et al., 2006). It also occurs within the southern part of the Central High Plains (Unit 67B), Major Land Resource Area (MLRA) (U.S. Department of Agriculture, Natural Resources Conservation Services [USDA-NRCS], 2006). In its undisturbed condition, this area is characterized as flat to rolling plains of shortgrass prairie that receives 12 to 18 inches of precipitation per year (Chapman et al., 2006). Common plant species found in undisturbed portions of this ecoregion include blue grama (*Bouteloua gracilis*), buffalograss (*Buchloe dactyloides*), threadleaf sedge (*Carex filifolia*), fringed sage (*Artemisia frigida*), Junegrass (*Koeleria macrantha*), and western wheatgrass (*Pascopyrum smithii*) (Chapman et al., 2006).

The entire project lies within developed urban areas, which limits the amount of natural habitat available for wildlife use. There is no known critical or essential wildlife habitat within the project area; however, several designated natural areas occur in the vicinity of the project area, including the Sand Creek Regional Greenway, the Bluff Lake Nature Center, and the RMA.

The I-70 East project area crosses two linear water bodies, the South Platte River and Sand Creek. The South Platte River crosses through developed portions of downtown Denver. While this segment of the South Platte River does not contain high-quality habitat, wildlife use the corridor to move to more desirable locations up and down stream. The South Platte River corridor is important to the north-south movement of urban wildlife, such as ducks, Canada geese (*Branta canadensis)*, kingfishers (*Ceryle alcyon*), red-winged black birds (*Agelaius phoeniceus*), crayfish (*Cambarus* sp.), and killdeer (*Charadrius vociferous*). Fish also inhabit the South Platte River, which is predominantly considered to be a warmwater fishery (P. Winkle, personal communication, January 3, 2013). Common fish species in the South Platte River in the vicinity of I-70 include common carp (*Cyprinus carpio carpio*), white sucker (*Catostomus commersonii*), and fathead minnows (*Pimephales promelas*). Other species can include longnose dace (*Rhinichthys cataractae*), creek chub (*Semotilus atromaculatus*), Iowa darter (*Etheostoma exile*), Johnny darter (*Etheostoma nigrum*), sand shiners (*Notropis stramineus*), rainbow trout (*Oncorhynchus mykiss*), and brown trout (*Salmo trutta trutta*) (P. Winkle, personal communication, January 3, 2013).

The Sand Creek Regional Greenway spans 14 miles from the High Line Canal in Aurora to the Platte River Greenway in Commerce City and intersects the project area just east of Quebec Street. Some riparian vegetation does occur along Sand Creek and represents the greatest plant species diversity in the project area. The Sand Creek Regional Greenway provides habitat and facilitates movement of urban wildlife, including mule deer (*Odocoileus hemionus*), muskrat (*Ondatra zibethica)*, raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), cottontail rabbits (*Sylvilagus* sp.), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), beaver (*Castor canadensis*), black-tailed prairie dogs (*Cynomys ludovicianus*), kingfisher, blue heron (*Ardea herodias)*, red-tailed hawks (*Buteo jamaicensis*), and many other species. A variety of warmwater fish species also inhabit Sand Creek. Several of these fish species are white suckers, creek chub, longnose dace, fathead minnow, Iowa and Johnny darters, green sunfish (*Lepomis cyanellus*), bigmouth shiner (*Notropis dorsalis*), mosquitofish (*Gambusia affinis*), and brook stickleback (*Culaea inconstans*) (P. Winkle, personal communication, January 3, 2013).

The Bluff Lake Nature Center is a 123-acre natural area located along Sand Creek. It includes a seasonal lake, emergent wetlands, short-grass prairie, mixed-grass prairie, a riparian zone, and forested wetland. Located approximately 0.5 mile south of the project area east of Havana Street, the Bluff Lake Nature Center is home to urban wildlife, including deer (*Odocoileus* spp.)*,* red fox (*Vulpes vulpes*), beaver, reptiles, amphibians, and more than 75 species of birds (Bluff Lake Nature Center, 2010).

RMA, part of the USFWS National Wildlife Refuge System, is located approximately 1.25 miles north of the project area. Habitat at RMA includes small patches of relatively undisturbed native prairie, wooded areas, and wetlands. In addition to the wildlife and bird species listed above, it is home to several species of bats and birds, Bald Eagles, various fish species, badger (*Taxidea taxus*), mice and ground squirrels, as well as numerous species of reptiles, amphibians, and insects. The RMA supports nesting eagles and provides wintering and foraging habitat for Bald Eagles, as well as communal roost sites (USFWS, 2010; NDIS, 2004).

4. Consultation history

Consultation with USFWS was initiated in March 2004, at which time the I-70 East highway and East Corridor transit projects were being jointly analyzed. In April 2004, USFWS provided a list of federal endangered, threatened, proposed, and candidate species to be considered for analysis. Due to the length of time since that consultation, in December 2006 CDOT requested an updated list of threatened, endangered, candidate, and proposed wildlife and plant species and any designated critical habitat occurring within the I-70 East project area. CDOT received a letter from the USFWS on October 12, 2006, listing the sensitive species for Denver and Adams Counties. In December 2012, the USFWS' online IPaC system was reviewed. In addition to consultation with USFWS and CDOT biologists, a biologist at RMA, the executive director at Sand Creek Regional Greenway, and the executive director at the Bluff Lake Nature Center were contacted. Information on the presence of special-status species at these natural areas was collected. The following list summarizes those consultations:

- Mindy Hetrick, RMA biologist, was contacted by Atkins (formerly PBS&J) on September 5, 2006, and December 19, 2012, to discuss the presence of special-status species at RMA, particularly Bald Eagles and Burrowing Owls.
- Katherine Kramer, the executive director of the Sand Creek Regional Greenway, was contacted by Atkins (formerly PBS&J) on September 11, 2006, to discuss the presence of special-status species in the Greenway.
- Steve Norris, the executive director of the Bluff Lake Nature Center, was contacted by Atkins (formerly PBS&J) on September 12, 2006, to discuss the presence of special-status species at the Center.
- Alison Michael, USFWS-CDOT liaison, was consulted on December 13, 2012, regarding species to consider and related issues.

- Aaron Eilers, CDOT Region 6 wildlife biologist, was contacted on December 13, 2012, regarding Platte River depletions; he provided a technical review of the document in March 2013.
- Paul Winkle, fisheries biologist with CPW, was contacted by Atkins on January 3, 2013, to discuss fisheries resources of the South Platte River and Sand Creek.
- Jeff Peterson, CDOT Environmental Programs Branch wildlife biologist, provided a technical review of this biological assessment in April 2013.

Additional information and updates were gathered from their online resources. Findings from these consultations are noted in Section 5, Effects Analysis. Copies of the associated contact reports from 2008 are in Appendix B.

5. Effects analysis

Following is a discussion of species listed by the USFWS with potential to occur in the project area. As mentioned previously, the entire project area falls within the block clearance area for the black-footed ferret and PMJM. For this reason, these species are not evaluated in this document.

5.1. Ute Ladies'-tresses orchid (*Spiranthes diluvialis*)

The Ute ladies'-tresses orchid was listed as threatened under the Endangered Species Act in January 1992, and is ranked as imperiled both globally (G2G3) and in the state of Colorado (S2) (NatureServe, 2012). This orchid is a perennial that grows up to 20 inches tall and has a distinctive spike of white flowers (USFWS, 2010). It is known from British Columbia southwards to Colorado. Utah has the largest number of element occurrences, followed by Colorado (NatureServe, 2012). In Colorado, it is known from Boulder, El Paso, Garfield, Jefferson, Larimer, Moffat, and Weld Counties (NatureServe, 2012). The closest documented occurrence to the project area is in Wheatridge, Colorado (Fertig et al., 2005), roughly four miles west of the project area's western terminus. Within the project area, there is a block clearance for this species along the South Platte River.

The Ute ladies'-tresses orchid generally blooms from late July through the end of August (USFWS, 2010b). Depending on location and climatic conditions, however, the blooming timeframe can vary considerably (USFWS, 1992). It is adapted to early- to mid-seral sites with moist to wet conditions, where competition for light, space, water, and other resources is normally kept low by periodic or recent disturbance events (NatureServe, 2012). In Colorado, the orchid is found along perennial streams or rivers, or in groundwater-fed spring or sub-irrigated meadows at elevations ranging from 4,560 feet to 6,260 feet (Fertig et al., 2005).

The project area consists of highly developed urban areas and maintained properties in which there are no wet or sub-irrigated meadows. Non-jurisdictional wetlands found in highly modified sites, such as roadside ditches and stormwater basins, were formed from stormwater runoff and are unlikely to contain a seed source for Ute ladies'-tresses orchids. These types of areas typically do not require a survey for the orchid (USFWS, 1992).

The most promising habitat for this species in the project area is within riparian and wetland habitats found along Sand Creek. Photographs of the projected impact area on Sand Creek are provided in Appendix C. Though they were not specifically surveyed for, Ute ladies'-tresses orchids were not observed along Sand Creek (or elsewhere in the project area) during field visits conducted in August 2005 or on September 1, 2012. Richard McEldowney of Atkins, certified by USFWS-R6 to conduct *Spiranthes* surveys, completed the site assessment in 2012. The Ute ladies'-tresses orchid has not been documented on the RMA (USFWS, 2001). Automobile and pedestrian bridge construction, bank stabilization, and check dam construction have previously disturbed the potentially suitable habitat that does exist along Sand Creek in the project area. The wetland habitats in the potentially impacted areas along Sand Creek are degraded and are dominated by aggressive species, including reed canarygrass (*Phalaris arundinacea*) and coyote willow (*Salix exigua*), which further reduces the potential for this species to exist in the project area.

5.1.1. Direct and indirect effects

An estimated 1.05 acres to 1.15 acres of riparian habitat and 0.001 acre of wetland habitat at Sand Creek are expected to have direct, permanent impacts due to I-70 bridge widening over Sand Creek. Overall, the likelihood for Ute ladies'-tresses to occur along Sand Creek, or any part of the project area, is low; therefore, the probability of direct or indirect impact also is low.

Increased impervious surfaces are likely to increase the amount of water that enters Sand Creek during rain events. If left without any sort of treatment, this type of indirect effect could cause accelerated bank erosion or channel incision in Sand Creek. Because a series of check dams have already been installed along Sand Creek (complete with grouted boulder riprap in some locations), the likelihood of channel incision is greatly reduced. Similarly, many of the banks of Sand Creek have already been hardened with riprap. Those banks that are not hardened tend to have wetland vegetation, such as reed canarygrass, sedges, and coyote willow, which would help to minimize bank erosion. In general, it is expected that the increased water delivered to the channel would cause little change to the creek, though it may flood out of its banks onto the floodplain that has been preserved along Sand Creek slightly more frequently. The change in frequency of flooding onto the floodplain would depend on stormwater runoff control both from the proposed project and other development in the Sand Creek watershed.

To further reduce the likelihood of impacts, it is recommended that surveys be conducted during the month of August just prior to construction along the area of Sand Creek that would be specifically impacted. The purpose of these surveys is to ensure that the Ute ladies'-tresses orchid is not present in the impact zone. If Ute ladies'-tresses orchids are identified, formal consultation would be completed with the USFWS prior to construction.

5.1.2. Cumulative effects

Due to the general lack of suitable habitat and its likely absence from the project area, no cumulative effects to the Ute ladies'-tresses orchid are anticipated.

5.1.3. Determination and rationale

Because potentially suitable habitat for the Ute ladies'-tresses orchid does exist in the project area, but it has not been reported for either Denver or Adams Counties, has not been observed in the project area, and habitat quality in the project area has been previously degraded, the determination for the I-70 East project is that ***it may affect, but is not likely to adversely affect, the Ute ladies'-tresses orchid***.

5.2. Colorado butterfly plant (*Gaura neomexicana* ssp. *coloradensis*)

The Colorado butterfly plant was listed as threatened under the Endangered Species Act in October 2000, and is ranked globally as imperiled (G3T2) and critically imperiled (S1) in the state of Colorado (NatureServe, 2012). In 2005, seven units were designated as critical habitat for the Colorado butterfly plant in Wyoming (USFWS, 2010c). The Colorado butterfly plant is a perennial plant that grows up to 2 feet tall. It is a member of the evening primrose family, which are distinguished by having flowers with four petals that are fused at the base into a slender tube (USFWS, 2011). The Colorado butterfly plant is currently known from 17 locations worldwide, all from a limited geographic area of southeastern Wyoming, western Nebraska and northeastern Colorado. In Colorado, it has been historically documented in Boulder, Douglas, Jefferson, Larimer, and Weld Counties (NatureServe, 2012), though its primary distribution in Colorado is in Larimer and Weld Counties (USFWS, 2010c); Weld County is 15 miles north of the project area. Within the project area, there is a block clearance for this species along the South Platte River.

The Colorado butterfly plant flowers from June to September and fruits from July to October (Spackman et al., 1997). It is considered to be an early successional species that is adapted to stream channel sites that are periodically disturbed (USFWS, 2010c). It occurs on sub-irrigated, alluvial soils on level or slightly sloping floodplains and drainage bottoms at elevations ranging from 5,000 feet to 6,400 feet. Species that it commonly occurs with are red top (*Agrostis stolonifera*), Kentucky bluegrass (*Poa pratensis*), wild licorice

(*Glycyrrhiza lepidota*), Flodman's thistle (*Cirsium flodmanii*), curlycup gumweed (*Grindelia squarrosa*), and scouring rush (*Equisetum laevigatum*) (USFWS, 2010c).

The project area consists of highly developed urban areas and maintained properties in which there are no wet or sub-irrigated meadows. Non-jurisdictional wetlands found in highly modified sites such as roadside ditches and stormwater basins were formed from stormwater runoff and are unlikely to contain a seed source for the Colorado butterfly plant.

In the project area, the most promising habitat for this species is within riparian and wetland habitats found along Sand Creek. Photographs of the projected impact area on Sand Creek are provided in Appendix C. Though they were not specifically surveyed for, Colorado butterfly plants were not observed along Sand Creek (or elsewhere in the project area) during field visits conducted in August 2005 or on September 1, 2012. Richard McEldowney of Atkins, certified by USFWS-R6 to conduct *Spiranthes* surveys, and who has surveyed for the Colorado butterfly plant in other areas of Denver, completed the site assessment in 2012. It also has not been documented on the RMA (USFWS, 2001). The potentially suitable habitat that does exist along Sand Creek in the project area has been disturbed by previous activities, including previous automobile and pedestrian bridge construction, bank stabilization, and check dam construction (see Appendix C). The wetland habitats in the potentially impacted areas along Sand Creek are degraded and are dominated by aggressive species, including reed canarygrass (*Phalaris arundinacea*) and coyote willow (*Salix exigua*), which further reduces the potential for this species to exist in the project area.

5.2.1. Direct and indirect effects

An estimated 1.05 acres to 1.15 acres of riparian habitat and 0.001 acre of wetland habitat at Sand Creek are expected to have direct, permanent impacts due to I-70 bridge widening over Sand Creek. Overall the likelihood for the Colorado butterfly plant to occur along Sand Creek, or any part of the project area, is low; therefore, the probability of direct or indirect impact also is low.

Increased impervious surfaces are likely to increase the amount of water that enters Sand Creek during rain events. If left without any sort of treatment, this type of indirect effect could cause accelerated bank erosion or channel incision in Sand Creek. Because a series of check dams have already been installed along Sand Creek (complete with grouted boulder riprap in some locations), the likelihood of channel incision is greatly reduced. Similarly, many of the banks of Sand Creek have already been hardened with riprap. Those banks that are not hardened tend to have wetland vegetation, such as reed canarygrass, sedges, and coyote willow, which would help to minimize bank erosion. In general, it is expected that the increased water delivered to the channel will cause little change to the creek, though may flood out of its banks onto the floodplain that has been preserved along Sand Creek slightly more frequently. The change in frequency of flooding onto the floodplain would depend on stormwater runoff control both from the proposed project and other development in the Sand Creek watershed.

To further reduce the likelihood of impacts, it is recommended that surveys be conducted in the July/August timeframe just prior to construction along the area of Sand Creek that would be specifically impacted. The purpose of these surveys is to ensure that Colorado butterfly plant is not present in the impact zone. If Colorado butterfly plant is identified, formal consultation will be completed with the USFWS prior to construction.

5.2.2. Cumulative effects

Due to the lack of suitable habitat and its likely absence from the project area, no cumulative effects to the Colorado butterfly plant are anticipated.

5.2.3. Determination and rationale

Because potentially suitable habitat for the Colorado butterfly plant exists in the project area, but it has not been reported for either Denver or Adams Counties, has not been observed in the project area, and habitat quality in the project area has been previously degraded, the determination for the I-70 East project is that ***it may affect, but is not likely to adversely affect, the Colorado butterfly plant***.

5.3. Bald Eagle (*Haliaeetus leucocephalus*)

As mentioned previously, the Bald Eagle was delisted from the Endangered Species Act in 2007. It remains protected under the BGEPA, as well as the MBTA. Globally, the Bald Eagle is considered secure (G5), but in Colorado, breeding populations are considered to be imperiled and non-breeding populations vulnerable (NatureServe, 2012). The Bald Eagle occurs throughout North America. In eastern Colorado, the primary range for Bald Eagles is in the South Platte River and lower Arkansas River drainages (Andrews and Righter, 1992).

Bald Eagles are typically observed near water, such as reservoirs and large rivers. During the breeding season, they nest in large cottonwood trees and in winter often communally roost in large trees. They eat fish, waterfowl, muskrats, squirrels, rabbits, prairie dogs and often eat carrion and road-killed animals (CPW, 2012a).

A Bald Eagle nest site occurs on the RMA, approximately 1.3 miles north of the project area; however, the activity status is undetermined (CPW, 2012a). A communal roost site used by eagles in the winter also occurs on the RMA, roughly 1 mile north of the southern perimeter of the refuge. Bald Eagles also are known to winter in areas both north and south of the project area, with their winter range extending over the project corridor in the Stapleton neighborhood (see Figure 5) (CPW, 2012b). In this area, the range extends from the RMA south over the Stapleton Neighborhood to Sand Creek—one roost site is located approximately 0.9 mile south of I-70 in the Bluff Lake area (NDIS, 2004).

Figure 5. Designated Bald Eagle winter range

5.3.1. Direct and indirect effects

Roughly 36.2 acres of direct impact are expected to occur to Bald Eagle wintering range in the immediate vicinity of I-70. There would be no direct or indirect impacts to nest sites, winter night roosts, or hunting perches. Impacts to prairie dog towns (11.4 to 13.5 acres) would reduce potential prey items for Bald Eagles, particularly in winter (see Figure 6) (Andrews and Righter, 1992). However, the impacts would occur to

prairie dog towns in the immediate vicinity of I-70, which are of marginal value to Bald Eagles and are likely generally avoided by eagles. Permanent impacts to riparian, wetland and open water habitat (totaling 1.05 to 1.15 acres) at Sand Creek potentially decreases habitat available to waterfowl and poses a slight decrease in Bald Eagle foraging area. However, the impact to waterfowl is considered minimal. This is because: (1) the small amount of area impacted is in the immediate vicinity of the existing I-70 bridge over Sand Creek, and (2) the bridge would be expanded, thereby maintaining the current level of hydraulic connectivity of Sand Creek and minimizing indirect impacts up and downstream of the bridge.

Figure 6. Black-tailed prairie dog colonies

5.3.2. Cumulative effects

Given the existing urban nature of the project area, and the proposed improvements, the I-70 East project is not expected to contribute to the cumulative impacts to Bald Eagles.

5.3.3. Determination and rationale

If Bald Eagles are present during project implementation, they should not be agitated or bothered to the degree that causes or is likely to cause, based on the best scientific information available: (1) injury to an eagle (injury is defined as a wound or other physical harm, including a loss of biological fitness significant enough to pose a discernible risk to an eagle's survival or productivity); (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.

Based on the existing built-up urban environment, lack of breeding and roosting areas in the immediate project area, the location and poor quality of foraging habitat that would be impacted, and the fact that I-70 East is an existing roadway facility, it is determined that implementation of the proposed project ***would not result in "take" of Bald Eagles***, as described in the BGEPA and MBTA.

5.4. Conclusion and determination

A ***No effect*** determination is made for the PMJM, the black-footed ferret, and for all five Platte River Species. A ***May affect, not likely to adversely affect*** determination is made for the Ute ladies'-tresses orchid and the Colorado butterfly plant. It is also determined that the proposed project would not result in the "take" of Bald Eagles, as described in the BGEPA and MBTA.

A summary of effects to federally sensitive species due to construction of the I-70 East project is in Table 3.

Table 3. Summary of effects on federally sensitive species

Species	Federal Status	Determination of Effect	Basis for Determination
Small Mammals			
Black-footed ferret	Endangered	No effect	Block clearance zone. Considered to be extirpated from eastern Colorado.
PMJM	Threatened	No effect	Block clearance zone.
Plants			
Ute ladies'-tresses orchid	Threatened	May affect, not likely to adversely affect	Potentially suitable habitat occurs along Sand Creek, but habitat has been degraded, and there are no documented occurrences within Denver or Adams Counties.
Colorado butterfly plant	Threatened	May affect, not likely to adversely affect	Potentially suitable habitat occurs along Sand Creek, but habitat has been degraded, and there are no documented occurrences within Denver or Adams Counties.
Platte River Species			
Least Tern, interior population	Endangered	No Effect	CDOT is a member of SPWRAP and has consulted with the USFWS and received a Biological Opinion approving their Programmatic Biological Assessment on depletions to the Platte River. These actions ensure that water flow in the Platte River is sufficient for listed species inhabiting it.
Piping Plover	Threatened	No Effect	See above.
Whooping Crane	Endangered	No Effect	See above.
Pallid sturgeon	Endangered	No Effect	See above.
Western prairie fringed orchid	Threatened	No Effect	See above.
Bald and Golden Eagle Protection Act; Migratory Bird Treaty Act			
Bald Eagle	De-listed; protected under BGEPA and MBTA	No take	Impacts occur within an existing built-up urban environment to poor quality foraging habitat, there are no breeding or roosting areas in the project area, and no additional habitat fragmentation would occur.

The summer prior to construction, the areas along Sand Creek that would be impacted would need to be surveyed during the correct phenological time period for both Ute ladies'-tresses orchid and the Colorado

butterfly plant. This ensures the most current information on their occurrence in the project area is known prior to construction. Impacts to riparian areas would be mitigated in accordance with Senate Bill 40, and would be limited to the area necessary for construction. Impacts to wetlands would likely be mitigated at a regional wetland bank. Stream channel impacts at Sand Creek would be restored to pre-impact dimensions after construction is completed.

6. References

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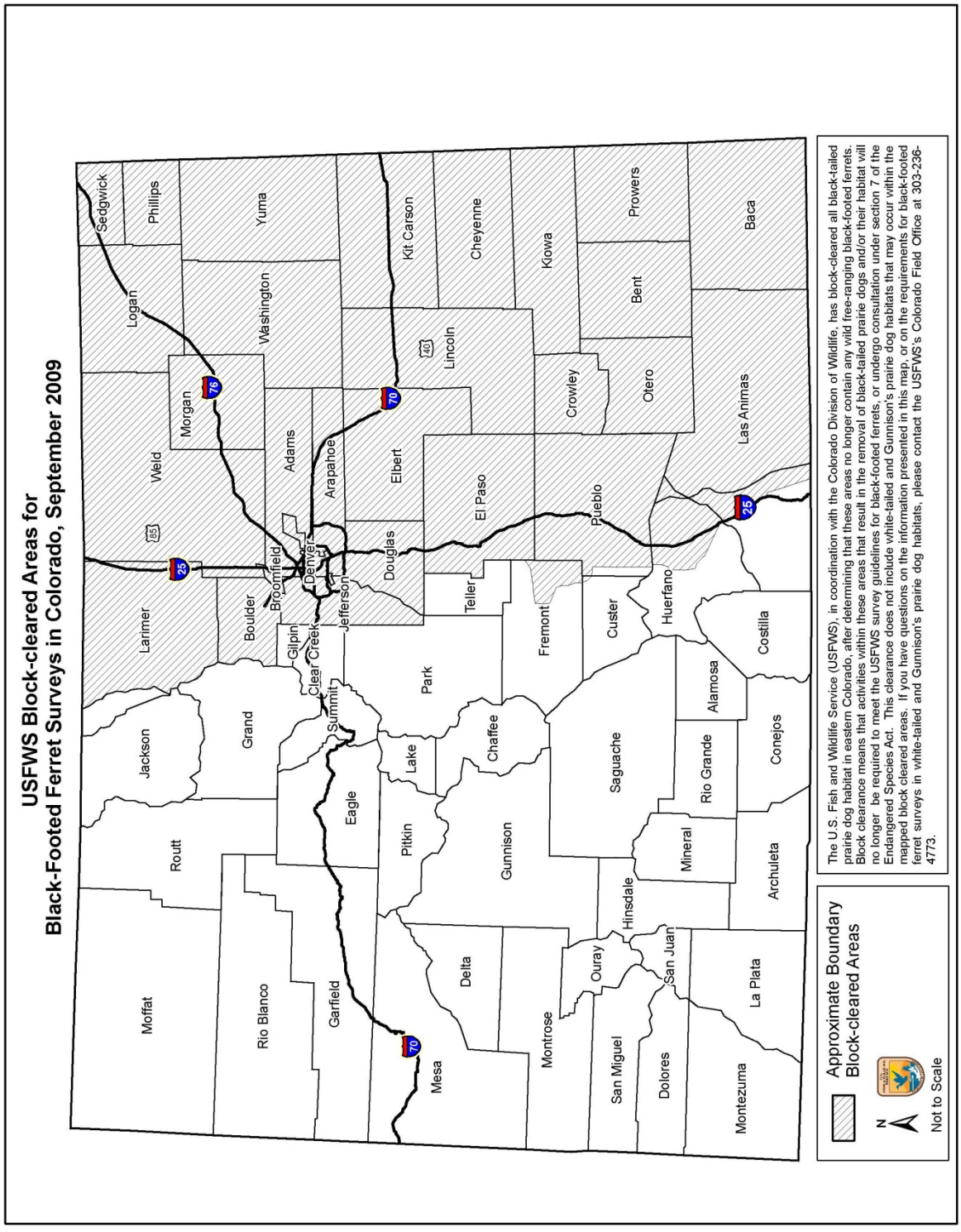
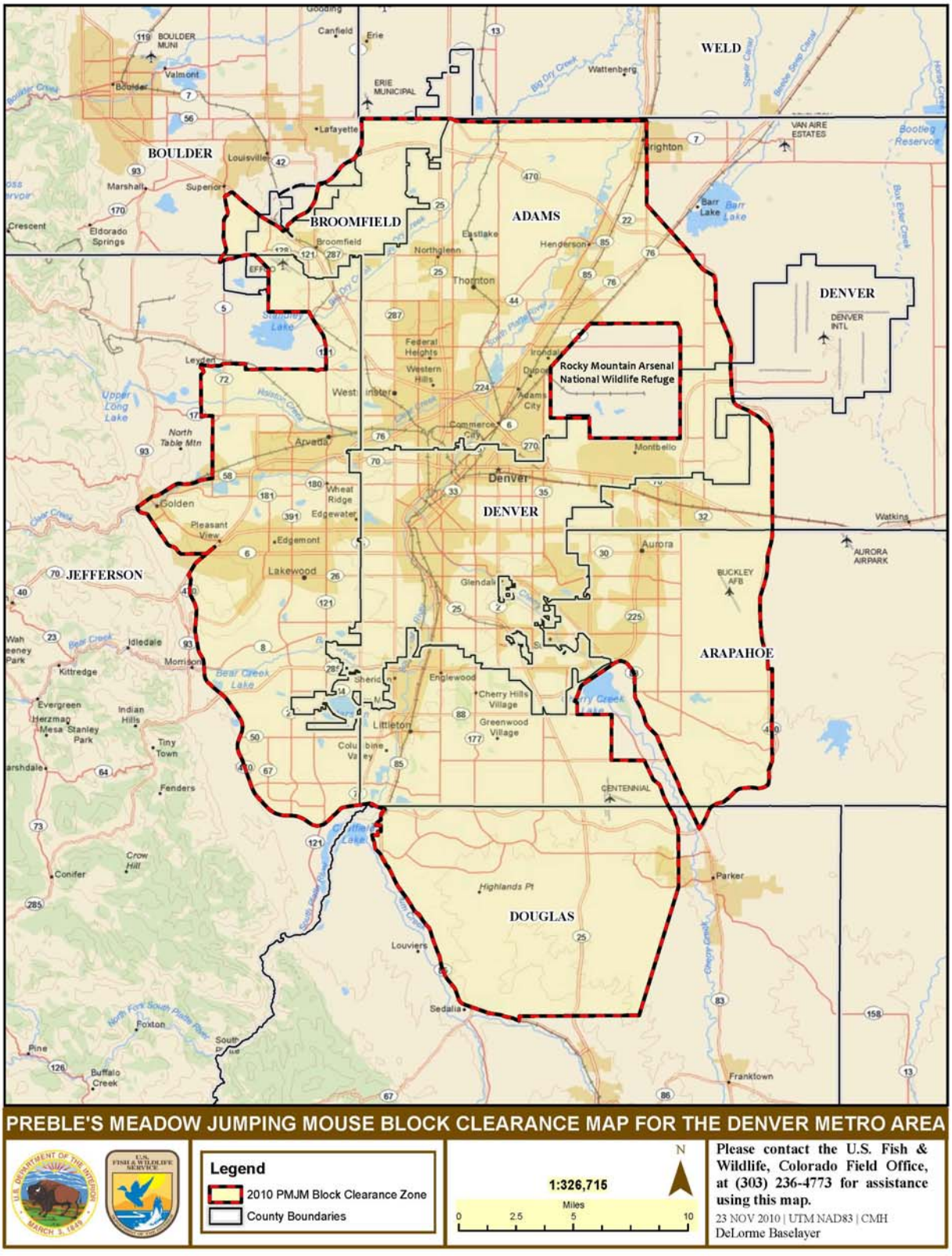
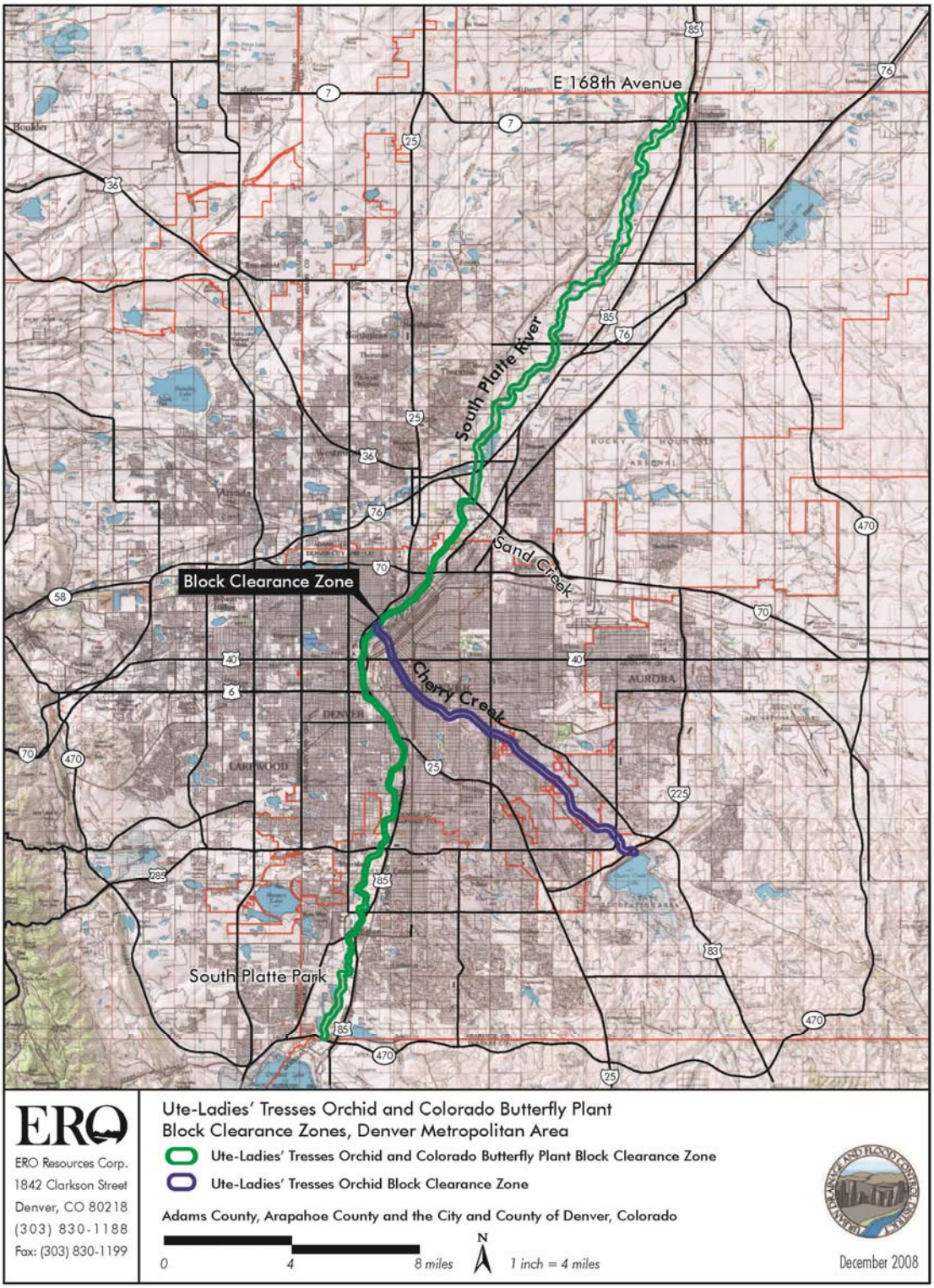
Attachment L – Appendix A
Block Clearance Zone Maps


USFWS Block-cleared Areas for
Black-Footed Ferret Surveys in Colorado, September 2009
Sedgwick
Phillips
Yuma
Logan
Washington
Kit Carson
Cheyenne
Kiowa
Prowers
Baca
Bent
Morgan
Lincoln
Crowley
Otero
Las Animas
Weld
Adams
Arapahoe
Elbert
El Paso
Pueblo
Larimer
Boulder
Broomfield
Denver
Douglas
Teller
Fremont
Custer
Huerfano
Costilla
Gilpin
Clear Creek
Jefferson
Park
Alamosa
Jackson
Grand
Summit
Lake
Chaffee
Saguache
Rio Grande
Conejos
Eagle
Pitkin
Gunnison
Mineral
Archuleta
Routt
Hinsdale
Moffat
Rio Blanco
Garfield
Delta
Ouray
San Juan
La Plata
Mesa
Montrose
San Miguel
Dolores
Montezuma
Approximate Boundary
Block-cleared Areas
N
Not to Scale
The U.S. Fish and Wildlife Service (USFWS), in coordination with the Colorado Division of Wildlife, has block-cleared all black-tailed prairie dog habitat in eastern Colorado, after determining that these areas no longer contain any wild free-ranging black-footed ferrets. Block clearance means that activities within these areas that result in the removal of black-tailed prairie dogs and/or their habitat will no longer be required to meet the USFWS survey guidelines for black-footed ferrets, or undergo consultation under section 7 of the Endangered Species Act. This clearance does not include white-tailed and Gunnison's prairie dog habitats that may occur within the mapped block cleared areas. If you have questions on the information presented in this map, or on the requirements for black-footed ferret surveys in white-tailed and Gunnison's prairie dog habitats, please contact the USFWS's Colorado Field Office at 303-236-4773.


PREBLE'S MEADOW JUMPING MOUSE BLOCK CLEARANCE MAP FOR THE DENVER METRO AREA
Legend
2010 PMJM Block Clearance Zone
County Boundaries
1:326,715
Miles
0 2.5 5 10
N
Please contact the U.S. Fish & Wildlife, Colorado Field Office, at (303) 236-4773 for assistance using this map.
23 NOV 2010 | UTM NAD83 | CMH
DeLorme Baselayer
Rocky Mountain Arsenal National Wildlife Refuge
BOULDER
BROOMFIELD
ADAMS
WELD
DENVER
JEFFERSON
ARAPAHOE
DOUGLAS


E 168th Avenue
South Platte River
Sand Creek
Cherry Creek
Block Clearance Zone
South Platte Park
Boulder
Aurora
Denver
Lakewood
Rocky Mountain Arsenal
ERO
ERO Resources Corp.
1842 Clarkson Street
Denver, CO 80218
(303) 830-1188
Fax: (303) 830-1199
Ute-Ladies' Tresses Orchid and Colorado Butterfly Plant
Block Clearance Zones, Denver Metropolitan Area
Ute-Ladies' Tresses Orchid and Colorado Butterfly Plant Block Clearance Zone
Ute-Ladies' Tresses Orchid Block Clearance Zone
Adams County, Arapahoe County and the City and County of Denver, Colorado
0
4
8 miles
N
1 inch = 4 miles
December 2008

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Attachment L – Appendix B
Previous Communications

I-70 EAST CORRIDOR
Environmental Impact Statement

Contact Report

Author: Nicolle Esquivel **Date/Time:** 9/5/06 3:09 pm

Subject: BMA - Bald Eagles **Doc. Control No.** _____

Person(s) Contacted:

Name/Title:	Mindy Hetrick
Company:	Rocky Mountain Arsenal
Address:	
Address:	
E-mail:	
☐ Check here to add the above info. to the contact/mailing list.	

Type of Contact:

- ☐ In Person
- ☒ Telephone
- ☐ Other:

Phone Numbers:

- ☐ Work:
- ☐ Cell:
- ☐ Other:

Report

I spoke with Mindy about the bald eagles on the Rocky Mountain Arsenal property. There is one nest present which fledged 2 eaglettes in the 2006 breeding season. In 2005 approximately 26 birds used the area for winter roosting which is down from previous years.

Actions/Recommendations

Item	Deadline	Person Responsible	Date Completed

Distribution:

Original to: job files

I-70 EAST CORRIDOR
Environmental Impact Statement

Contact Report

Author: Nicolle Esquivel **Date/Time:** 9/11/08 12:20

Subject: Sand Creek Regional Greenway **Doc. Control No.**

Person(s) Contacted:

Name/Title:	Kate Cramer
Company:	Sand Creek Greenway
Address:	
Address:	
E-mail:	
☐ Check here to add the above info. to the contact/mailing list.	

Type of Contact:

☐ In Person	
☒ Telephone	
☐ Other:	
Phone Numbers:	
☐ Work:	303-463-3263
☐ Cell:	
☐ Other:	

Report

I contacted Ms. Cramer to obtain updated information concerning T+E species and general wildlife at the Sand Creek Regional Greenway. She informed me that bald eagles winter at the greenway. They can be see everyday from November to March at 3 or 4 sites. Ms. Cramer is going to mail me the 1995 EPA study and other resources such as a list of common wildlife found around the greenway and Bluff Lake.

She asked that we continue to contact her as I-70 plans develop. She is concerned about the expansion's impact to the greenway particularly in Commerce City.

Actions/Recommendations

Item	Deadline	Person Responsible	Date Completed

Distribution:

Original to: job files

I-70 EAST CORRIDOR
Environmental Impact Statement

Contact Report

Author: Nicolle Esquivel **Date/Time:** 9/12/06 3:00pm

Subject: Bluff Lake Nature Center **Doc. Control No.** _____

Person(s) Contacted:		**Type of Contact:**	
Name/Title:	Steve Norris / Exec Dir	☐ In Person	
Company:	Bluff Lake Nature Center	☒ Telephone	
Address:		☐ Other:	
Address:		**Phone Numbers:**	
E-mail:		☐ Work:	
		☐ Cell:	
☐ Check here to add the above info. to the contact/mailing list.		☐ Other:	

Report

I spoke to Steve about the presence of federally listed threatened and endangered species at the Bluff Lake Nature Center. He informed me that bald eagles do use Bluff Lake during the winter. There are no other special status species at the center to his knowledge. He did mention that there was some migte habitat emerging at the center, namely short grass and mixed-grass prairie.

Actions/Recommendations

Item	Deadline	Person Responsible	Date Completed

Distribution:

Original to: job files

I-70 EAST CORRIDOR
Environmental Impact Statement

Contact Report

Author: Francesca **Date/Time:** 7/12/04 9:30 AM

Subject: RMA - meeting **Doc. Control No.**

Person(s) Contacted:		**Type of Contact:**
Name/Title:	Eric Stone - Wildlife Biologist	☐ In Person
Company:	RMA - USFWS	☒ Telephone
Address:		☐ Other:
Address:		**Phone Numbers:**
E-mail:	Eric_Stone@fws.gov	☐ Work:
		☐ Cell:
☐ Check here to add the above info. to the contact/mailing list.		☐ Other:

Report

I spoke with Eric to discuss our upcoming meeting on 7/22. We discussed several issues. & prairie dogs, raptors, preble's etc... He also mentioned something else - his concern about light pollution associated with rail stations etc..
He also mentioned that prairie dogs are going to be a big issue - a "secondary" impact. He told me that isolated pockets are important because they assist in recolonizing areas that have been wiped out by plague. He also mentioned the "proposed" bison along Peña Blvd - This could cause issues and structures may be necessary to keep ungulates off the highway. I also sent Eric a shapefile of the Project Area.

Actions/Recommendations

Item	Deadline	Person Responsible	Date Completed

Distribution:

Original to: job files

Attachment L – Appendix C
Selected Photographs

Photo 1. Facing ESE toward the north side of the I-70 bridge over Sand Creek, showing existing conditions and check dam (9/1/12).

Photo 2. Facing ESE toward the north side of the I-70 bridge over Sand Creek, zoomed in - showing existing conditions and check dam (9/1/12).

Photo 3. Facing E at Sand Creek's stream channel and wetland habitat on the north side of the I-70 from the west bank (9/1/12).

Photo 4. Facing ESE under the I-70 bridge at Sand Creek from the west bank, showing existing conditions and riprap bank stabilization (9/1/12).

Photo 5. Facing WNW at Sand Creek's stream channel and wetland habitat on the north side of the I-70 from the east bank (9/1/12).

Photo 6. Facing S under the I-70 bridge at Sand Creek from the west bank, showing existing conditions and riprap bank stabilization (9/1/12).

Photo 7. Facing N under the I-70 bridge at Sand Creek from the pedestrian bridge south of I-70 (9/1/12).

Photo 8. Facing N under the I-70 bridge at Sand Creek along the east bank under I-70 (9/1/12).

Photo 9. Facing N toward the south side of the I-70 bridge at Sand Creek, showing the riparian area east of the creek that had been previously cleared (9/1/12).

Photo 10. Facing NE toward the south side of the I-70 bridge at Sand Creek, showing the riparian area east of the creek that had been previously cleared (9/1/12).

Photo 11. Facing E at the area south of I-70 bridge showing the east bank of Sand Creek fbetween the pedestrian bridge and the I-70 bridge (9/1/12).

Photo 12. Facing W at the area south of I-70 bridge showing the west bank of Sand Creek between the pedestrian bridge and the I-70 bridge (9/1/12).

	
Photo 13. Facing S at the east bank of Sand Creek south of the pedestrian bridge (9/1/12).	**Photo 14.** Facing S at the west bank of Sand Creek south of the pedestrian bridge (9/1/12).

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